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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ANTI-CD38 HUMAN ANTIBODIES AND USES THEREFOR

(57) Abstract: The present invention provides recombinant antigen-binding regions and antibodies and functional fragments containing such antigen-binding regions that are specific for CD38, which plays an integral role in various disorders or conditions. These antibodies, accordingly, can be used to treat, for example, hematological malignancies such as multiple myeloma. Antibodies of the invention also can be used in the diagnostics field, as well as for investigating the role of CD38 in the progression of disorders associated with malignancies. The invention also provides nucleic acid sequences encoding the foregoing antibodies, vectors containing the same, pharmaceutical compositions and kits with instructions for use. The invention also provides isolated novel epitopes of CD38 and methods of use therefore.

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB2005/002476

A. CLASSIFICATION OF SUBJECT MATTER  
INV. C07K16/28 A61P37/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/06347 A (CRUCCELL HOLLAND B.V; LOGTENBERG, TON; CILENTI, LUCIA) 24 January 2002 (2002-01-24) page 2, line 18 - page 3, line 25 claims; examples	1-84
X	US 2002/164788 A1 (ELLIS JONATHAN HENRY ET AL) 7 November 2002 (2002-11-07) paragraph [0001] - paragraph [0002] paragraph [0069] - paragraph [0072] paragraph [0078] - paragraph [0080] claims; examples ----- -/--	1-84

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

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## INTERNATIONAL SEARCH REPORT

International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ELLIS JONATHAN H ET AL: "Engineered anti-CD38 monoclonal antibodies for immunotherapy of multiple myeloma" JOURNAL OF IMMUNOLOGY, THE WILLIAMS AND WILKINS CO. BALTIMORE, US, vol. 155, no. 2, 1995, pages 925-937, XP002146232 ISSN: 0022-1767 the whole document -----	1-84
A	AUSIELLO C M ET AL: "Functional topography of discrete domains of human CD38." TISSUE ANTIGENS. DEC 2000, vol. 56, no. 6, December 2000 (2000-12), pages 539-547, XP002389874 ISSN: 0001-2815 the whole document -----	1-74
A	HOSHINO S ET AL: "Mapping of the catalytic and epitopic sites of human CD38/NAD+ glycohydrolase to a functional domain in the carboxyl terminus." JOURNAL OF IMMUNOLOGY (BALTIMORE, MD. : 1950) 15 JAN 1997, vol. 158, no. 2, 15 January 1997 (1997-01-15), pages 741-747, XP002389875 ISSN: 0022-1767 abstract -----	1-84

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2005/002476

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 69-74 are directed to a method of treatment of the human body, the search has been carried out and based on the alleged effects of the composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/IB2005/002476

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0206347	A	24-01-2002	AU 8267501 A	30-01-2002
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